

THE CLAIMS

1. (Currently Amended) A handheld circuit tester for an automotive electrical system systems having circuit portions respectively operable at a first nominal voltage range with respect to ground and a second nominal voltage range with respect to ground ~~at least one of a low voltage and a high voltage~~, the tester comprising:

an elongated, curved handle portion, the handle portion being substantially in the shape of a screwdriver handle;

a probe device, ~~the probe device being~~ substantially in the shape of a screwdriver shank, ~~wherein the probe device coupled to the handle portion and is capable of conducting current from the positive side~~ contacting a circuit point of an automotive circuit;

a ground device coupled to the handle portion and capable of being securely ~~attaching~~ attached to a ground point ~~the negative side of the automotive circuit~~; and

~~electronic~~ circuitry disposed within the handle portion and operatively coupled to the probe device and the ground device, the circuitry being configured to sense voltage at the circuit point and to indicate whether the sensed voltage corresponds to the first or second nominal voltage range ~~a low automotive system voltage and a high automotive system voltage~~, and ~~wherein the electronic circuitry is disposed within the elongated, curved handle portion.~~

2. (Currently Amended) The tester as recited in claim 1, wherein the ~~electronic~~ circuitry includes a first visible indicator that ~~indicates a low automotive system voltage is~~ corresponds to a sensed voltage within the first nominal voltage range, and a second visible indicator that ~~indicates a high automotive system voltage is~~ corresponds to a sensed voltage within the second nominal voltage range.

3. (Original) The tester as recited in claim 2, wherein the first and second visible indicators are light emitting devices.

4. (Original) The tester as recited in claim 3, wherein the handle portion is composed of a material that is sufficiently transparent such that the light emitting devices are visible through the material when the light emitting devices are energized.

5. (Original) The tester as recited in claim 4, wherein the handle material is a polymer.

6. (Currently Amended) The tester as recited in claim 3, wherein the first visible indicator when active emits light of a first color ~~when a low automotive system voltage is sensed~~, and the second visible indicator when active emits light of a second color ~~when a high automotive system voltage is sensed~~.

7. (Currently Amended) The tester as recited in claim 3, wherein the first and second visible ~~indicator is~~ indicators each comprise two LEDs, ~~and the second visible indicator is two~~ LEDs.

8. (Currently Amended) The tester as recited in claim 1, further comprising:  
a spring assembly disposed within the handle between the probe device and electronic circuit, wherein the spring assembly is comprised of a conductive material, and wherein the spring assembly is configured to compress when force is applied to the probe device.

9. (Currently Amended) The tester as recited in claim 1, wherein the ground device includes insulation positioned thereon, and

wherein the probe device includes protective layer tubing positioned thereon, the tubing being configured to securely fit over an exposed portion of the probe device.

10. (Currently Amended) The tester as recited in claim 1 8, further comprising:  
a retractable assembly that includes an insulated flexible electrical wire, the retractable assembly being disposed between the spring assembly and the ground device.

11. (Currently Amended) The tester as recited in claim 1 10, further comprising:  
a protective cap having an open end capable of securely fitting over at least a portion of the probe device, whereby the protective cap protects the probe device from physical damage when the probe device is not in use; and

a strain relief device extending from the handle, the strain relief device being coaxial with the handle and the retractable assembly, wherein the retractable assembly has an outside diameter and the strain relief device has an inside diameter, wherein inside diameter of the strain relief device forms a substantially annular ring around at least a portion of the outside diameter of the retractable assembly.

12. (Currently Amended) The tester as recited in claim 1 2, wherein the ~~electronic~~ circuitry ~~includes~~ comprises:

a first zener diode having a breakdown voltage sufficient to energize only the first visible indicator when a ~~low automotive system~~ voltage corresponding to the lower nominal voltage range is sensed; ~~the electronic circuitry further including and~~

a second zener diode having a breakdown voltage sufficient to energize the second visible indicator when a ~~high automotive system~~ voltage corresponding to the higher nominal voltage range is sensed.

13. (Currently Amended) A method for testing the voltage level of an automotive circuit with a circuit tester, the automotive circuit having ~~one of a high voltage and a low voltage~~ portions respectively operable at a first nominal voltage level with respect to ground and a second nominal voltage level with respect to ground, the circuit tester including an elongated curved handle portion, a probe device substantially in the shape of a screwdriver shank, a ground device, and electronic circuitry operatively coupled to the probe device and the ground device, the electronic circuitry being disposed within the handle portion, wherein the circuitry is configured to sense a ~~low voltage and a high voltage~~ at a circuit point of an automotive circuit, and wherein the circuit tester further includes a visible display operatively coupled to electronic circuitry, the handle being composed of a material that is sufficiently transparent such that the visible display is visible through the handle, the method comprising the steps of:

connecting the probe device to ~~the positive side~~ a circuit point of an automotive circuit;  
connecting the ground device to ground ~~the negative side of the automotive circuit~~; and  
determining whether the voltage at the circuit point corresponds to the first or second nominal voltage level ~~of the automotive circuit~~ based on the visible display.

14. (Currently Amended) The method as recited in claim 13, wherein the visible display includes a first visible indicator that corresponds to a sensed voltage at the first nominal voltage level and ~~second visible indicator, wherein the first visible indicator indicates a low automotive system voltage is sensed, and the a second visible indicator indicates a high automotive system voltage is~~ that corresponds to a sensed voltage at the second nominal voltage level.

15. (Currently Amended) The method as recited in claim 14, wherein the first visible indicator includes an LED that emits light of a first color when active ~~a low automotive system voltage is sensed~~, and the second visible indicator includes an LED that emits light of a second color when active ~~a high automotive system voltage is sensed~~.

16. (Currently Amended) An electrical circuit for testing the voltage level of an automotive circuit, the electrical circuit being adapted to be disposed within a curved, elongated handle of a circuit tester for automotive electrical circuits, the handle being composed of a material that is sufficiently transparent such that light from a first light emitting load and light from a second light emitting load are visible through the handle, the circuit comprising:

a first voltage sensing device that senses a nominal low level automotive system voltage with respect to ground;

a second voltage sensing device that senses a nominal high level automotive system voltage with respect to ground;

wherein the first light emitting load is responsive to the first voltage sensing device, ~~and wherein the first voltage sensing device energizes the first light emitting load~~ to be energized when a the nominal low level automotive system voltage is sensed; and

~~wherein~~ the second light emitting load is responsive to the second voltage sensing device;  
~~and wherein the second voltage sensing device energizes the second light emitting load to be~~  
energized when a the nominal high level automotive system voltage is sensed.

17. (Original) The circuit as recited in claim 16, wherein the first light emitting load is a set of series-connected LEDs, and the second light emitting load is a set of series-connected LEDs.

18. (Currently Amended) The circuit as recited in claim ~~16~~ 17, wherein the first set of series-connected LEDs ~~is configured to respond to the first voltage sensing device by emitting~~  
emits light of a first color when energized ~~a low automotive system voltage is sensed by the first~~  
~~voltage sensing device~~, and the second set of series-connected LEDs ~~is configured to respond to~~  
~~the second voltage sensing device by emitting~~ emits light of a second color when energized ~~a~~  
~~high automotive system voltage is sensed by the second voltage sensing device.~~

19. (Currently Amended) The circuit of claim 16 wherein the first voltage sensing device ~~is~~ comprises a zener diode, and the second voltage sensing device ~~is~~ comprises a zener diode.

20. (Original) An electrical circuit for testing the voltage level of an automotive circuit, the circuit comprising:

a first zener diode configured to energize a first visible indicator;

a second zener diode configured to energize a second visible indicator;

wherein the first visible indicator is responsive to the first zener diode such that the first visible indicator provides a visible indication that a low automotive system voltage is sensed, and wherein the first zener diode has a breakdown voltage sufficient to energize only the first visible indicator when a low automotive system voltage is sensed; and

wherein the second visible indicator is responsive to the second zener diode such that the second visible indicator provides a visible indication that a high automotive system voltage is sensed, and wherein the second zener diode has a breakdown voltage sufficient to energize the second visible indicator when a high automotive system voltage is sensed.

21. (Currently Amended) An apparatus for testing the voltage level of an automotive circuit having circuit portions respectively operable at a low nominal voltage range with respect to ground and a high nominal voltage range with respect to ground ~~at least one of a low voltage or a high voltage~~, the apparatus comprising:

means for sensing ~~a low~~ an automotive system voltage in the low nominal range;

means for providing a first visible indicator when a low automotive system voltage is sensed;

means for sensing ~~a high~~ an automotive system voltage in the high nominal range; and

means for providing a second visible indicator when a high automotive system voltage is sensed.